In my application number ***08 /477 704*** *titled* ***"Reciprocating Elements and Associated Fluid Flows"*** *filed on June 7 1995 under group art 3747, WHAT I Mitja Victor Hinderks CLAIM IS:*

[In this ***CLEAN*** *schedule of claims, the changes to the prior claims and the new claims submitted as part of the response to the office action of January 18 2003 are not separately noted. A list of the claims showing amendments, deletions and additions made in response to the action is provided separately.]*

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218. *A rotatable shaft, a mechanism and device for the working of fluids, said device comprising a housing with a cylinder assembly mounted therein, at least one component assembly mounted to reciprocate within said cylinder assembly, said cylinder assembly having at least one first working surface and said component assembly having at least one second working surface such that said working surfaces in operation are approximately parallel and co-axial and variably spaced, said surfaces partly defining at least one fluid working chamber varying in capacity during an operating cycle of said device, means deployed between said cylinder assembly and said component assembly to cause said component assembly and said second surface to rotate while reciprocating relative to said cylinder assembly and said first surface, said component assembly being linked to said shaft by said mechanism, said mechanism causing said shaft to only rotate while said component assembly reciprocates and rotates.*

219. *A rotatable shaft, a mechanism and device for the working of fluids, said device comprising a housing with a cylinder assembly mounted therein, at least one component assembly mounted to reciprocate within said cylinder assembly, said cylinder assembly having at least one first working surface and said component assembly having at least one second working surface such that said working surfaces in operation are approximately parallel and co-axial and variably spaced, said surfaces partly defining at least one fluid working chamber varying in capacity during an operating cycle of said device, means*

deployed between said cylinder assembly and said component assembly to cause said component assembly and said second surface to rotate while reciprocating relative to said cylinder assembly and said first surface, said component assembly being linked to said shaft by said mechanism, said mechanism causing said shaft to only rotate while said component assembly reciprocates and rotates, said cylinder assembly being rotatably mounted in said housing.

220. *A rotatable shaft, a mechanism and device for the working of fluids, said device comprising a housing with a cylinder assembly mounted therein, at least one component assembly mounted to reciprocate within said cylinder assembly, said cylinder assembly having at least one working surface and said component assembly having at least one second working surface such that said working surfaces in operation are approximately parallel and co-axial and variably spaced, said surfaces partly defining at least one fluid working chamber varying in capacity during an operating cycle of said device, each of said surfaces being of endless wave-like configuration to permit and limit said component assembly and said second surface to both reciprocate and rotate relative to said cylinder assembly and said first surface, said mechanism causing said shaft to only rotate while said component assembly reciprocates and rotates.*

223. *The device of claim 218, said cylinder assembly being rotatably mounted in said housing.*

224. *The device of claim 220, said cylinder assembly being rotatably mounted in said housing.*

225. *A reciprocating internal combustion engine, including a fuel delivery system, an exhaust emissions control system and the device of claim 218.*

226. *A reciprocating internal combustion engine, including a fuel delivery system,*

an exhaust emissions control system and the device of claim 219.

227. *A reciprocating internal combustion engine, including a fuel delivery system, an exhaust emissions control system and the device of claim 220.*

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230. *The engine of claim 225, said cylinder assembly being rotatably mounted in said housing.*

231. *The engine of claim 227, said cylinder assembly being rotatably mounted in said housing.*

232. *A compound engine comprising the engine of claim 225, at least one other engine, and a special means for transferring work between each of said at least two engines.*

233. *A compound engine comprising the engine of claim 226, at least one other engine, and a special means for transferring work between each of said at least two engines.*

234. *A compound engine comprising the engine of claim 227, at least one other engine, and a special means for transferring work between each of said at least two engines.*

235. *The compound engine of claim 232, wherein said special means include the flow of heated gases.*

236. *The compound engine of claim 233, wherein said special means include the flow of heated gases.*

237. *The compound engine of claim 234, wherein said special means include the flow of heated gases.*

238. *The device of claim 218, wherein said component assembly defines a passage for fluids worked by said device.*

239. *The device of claim 219, wherein said component assembly defines a passage for fluids worked by said device.*

240. *The device of claim 220, wherein said component assembly defines a passage for fluids worked by said device.*

241. *The device of claim 218, including structure which defines a volume at least partially surrounding said cylinder assembly, in operation said volume functioning as a passage for fluids worked by said device.*

242. *The device of claim 219, including structure which defines a volume at least partially surrounding said cylinder assembly, in operation said volume functioning as a passage for fluids worked by said device.*

243. *The device of claim 220, including structure which defines a volume at least partially surrounding said cylinder assembly, in operation said volume functioning as a passage for fluids worked by said device.*

244. *The engine of claim 225, wherein said component assembly defines a passage for fluids worked by said device.*

245. *The engine of claim 226, wherein said component assembly defines a passage for fluids worked by said device.*

246. *The engine of claim 227, wherein said component assembly defines a passage for fluids worked by said device.*

247. *The engine of claim 225, including structure which defines a volume at least partially surrounding said cylinder assembly, in operation said volume*

functioning as a passage for fluids worked by said device.

248. *The engine of claim 226, including structure which defines a volume at least partially surrounding said cylinder assembly, in operation said volume functioning as a passage for fluids worked by said device.*

249. *The (device)engine of claim 227, including structure which defines a volume at least partially surrounding said cylinder assembly, in operation said volume functioning as a passage for fluids worked by said device.*

250. *The engine of claim 244, including filamentary material within said passage.*

251. *The engine of claim 245, including filamentary material within said passage.*

252. *The engine of claim 246, including filamentary material within said passage.*

253. *The engine of claim 247, including filamentary material within said volume.*

254. *The engine of claim 248, including filamentary material within said volume.*

255. *The engine of claim 249, including filamentary material within said volume.*

256. *The engine of claim 250, wherein said filamentary material is catalytic to expedite reactions between elements of the working fluids.*

257. *The engine of claim 251, wherein said filamentary material is catalytic to expedite reactions between elements of the working fluids.*

258. *The engine of claim 252, wherein said filamentary material is catalytic to expedite reactions between elements of the working fluids.*

259. *The engine of claim 253, wherein said filamentary material is catalytic to*

expedite reactions between elements of the working fluids.

260. *The engine of claim 254, wherein said filamentary material is catalytic to expedite reactions between elements of the working fluids.*

261. *The engine of claim 252, wherein said filamentary material is catalytic to expedite reactions between elements of the working fluids..*

262. *The device of claim 218, including insulating material at least partially encasing said device.*

263. *The device of claim 219, including insulating material at least partially encasing said device.*

264. *The device of claim 220, including insulating material at least partially encasing said device.*

265. *The engine of claim 225, including insulating material at least partially encasing said engine.*

266. *The engine of claim 226, including insulating material at least partially encasing said engine.*

267. *The engine of claim 227, wherein said cylinder assembly is formed at least in part of ceramic material.*

268. *The device of claim 218, wherein said cylinder assembly is formed at least in part of ceramic material.*

269. *The device of claim 219, wherein said cylinder assembly is formed at least in part of ceramic material.*

270. *The device of claim 220, wherein said cylinder assembly is formed at least in part of ceramic material.*

271. *The device of claim 218, wherein said component assembly is formed at least in part of ceramic material.*

272. *The device of claim 219, wherein said component assembly is formed at least in part of ceramic material.*

273. *The device of claim 220, wherein said component assembly is formed at least in part of ceramic material.*

274. *The device of claim 218, wherein said component assembly has a first distinct surface and said cylinder assembly a second distinct surface, in operation said distinct surfaces being approximately constantly spaced from and approximately parallel to one another, at least one of said distinct surfaces defining at least one depression wholly fillable by fluids worked by said device.*

275. *The device of claim 219, wherein said component assembly has a first distinct surface and said cylinder assembly a second distinct surfaces, in operation said distinct surfaces being approximately constantly spaced from and approximately parallel to one another, at least one of said distinct surfaces defining at least one depression wholly fillable by fluids worked by said device.*

276. *The device of claim 220, wherein said component assembly has a first distinct surface and said cylinder assembly a second distinct surfaces, in operation said distinct surfaces being approximately constantly spaced from and approximately parallel to one another, at least one of said distinct surfaces defining at least one depression wholly fillable by fluids worked by said device.*

277. *The device of claim 218, wherein said cylinder assembly is comprised of portions including at least one element, each said element holding said*

portions together and being pre-loaded under tension.

278. *The device of claim 277, wherein said element is of tubular form.*

279. *The device of claim 219, wherein said cylinder assembly is comprised of portions including at least one element, each said element holding said portions together and being pre-loaded under tension.*

280. *The device of claim 279, wherein said element is of tubular form.*

281. *The device of claim 220, wherein said cylinder assembly is comprised of portions including at least one element, each said element holding said portions together and being pre-loaded under tension.*

282. *The device of claim 281, wherein said element is of tubular form.*

283. *The device of claim 218, wherein said component assembly is comprised of portions including at least one element, each said element holding said portions together and being pre-loaded under tension.*

284. *The device of claim 283, wherein said element is of tubular form.*

285. *The device of claim 219, wherein said component assembly is comprised of portions including at least one element, each said element holding said portions together and being pre-loaded under tension.*

286. *The device of claim 285, wherein said element is of tubular form.*

287. *The device of claim 220, wherein said component assembly is comprised of portions including at least one element, each said element holding said portions together and being pre-loaded under tension.*

288. *The device of claim 287, wherein said element is of tubular form.*

289. *The engine of claim 225, wherein said cylinder assembly is formed at least in part of ceramic material.*

290. *The engine of claim 226, wherein said cylinder assembly is formed at least in part of ceramic material.*

291. *The engine of claim 227, wherein said cylinder assembly is formed at least in part of ceramic material.*

292. *The engine of claim 225, wherein said component assembly is formed at least in part of ceramic material.*

293. *The engine of claim 226, wherein said component assembly is formed at least in part of ceramic material.*

294. *The engine of claim 227, wherein said component assembly is formed at least in part of ceramic material.*

295. *The engine of claim 289, including at least one electrical circuit within said ceramic material.*

296. *The engine of claim 290, including at least one electrical circuit within said ceramic material.*

297. *The engine of claim 291, including at least one electrical circuit within said ceramic material.*

298. *The engine of claim 292, including at least one electrical circuit within said ceramic material.*

299. *The engine of claim 293, including at least one electrical circuit within said ceramic material.*

300. *The engine of claim 294, including at least one electrical circuit within said ceramic material.*

301. *The rotatable shaft, mechanism and device of claim 218, in which said mechanism comprises a series of splines slidably mounted on another series of splines.*

302. *The rotatable shaft, mechanism and device of claim 219, in which said mechanism comprises a series of splines slidably mounted on another series of splines.*

303. *The rotatable shaft, mechanism and device of claim 220 , in which said mechanism comprises a series of splines slidably mounted on another series of splines.*

304. *The rotatable shaft, mechanism and device of claim 218 including rollers, in which said mechanism comprises a series of flanges slidably mounted on another series of flanges, said two series of flanges being separated by said rollers.*

305. *The rotatable shaft, mechanism and device of claim 219 including rollers, in which said mechanism comprises a series of flanges slidably mounted on another series of flanges, said two series of flanges being separated by said rollers.*

306. *The rotatable shaft, mechanism and device of claim 220 including rollers, in which said mechanism comprises a series of flanges slidably mounted on another series of flanges, said two series of flanges being separated by said rollers.*

307. *The rotatable shaft, mechanism and device of claim 218, wherein said mechanism comprises at least one bellows.*

308. *The rotatable shaft, mechanism and device of claim 219, wherein said mechanism comprises at least one bellows.*

309. *The rotatable shaft, mechanism and device of claim 220, wherein said mechanism comprises at least one bellows.*

310. *The rotatable shaft, mechanism and device of claim 218, wherein said mechanism comprises at least one hinged element.*

311. *The rotatable shaft, mechanism and device of claim 219, wherein said mechanism comprises at least one hinged element.*

312. *The rotatable shaft, mechanism and device of claim 220, wherein said mechanism comprises at least one hinged element.*

319. *The device of claim 218, wherein said means comprise a guide restrained by a single endless substantially sinusoidal path.*

320. *The device of claim 219, wherein said means comprise a guide restrained by a single endless substantially sinusoidal path.*

321. *The device of claim 319, wherein said guide is a roller of truncated conical configuration.*

322. *The device of claim 320, wherein said guide is a roller of truncated conical configuration.*

323. *The engine of claim 225, wherein said means comprise a guide restrained by a single endless substantially sinusoidal path.*

324. The engine of claim 226, wherein said means comprise a guide restrained by a single endless substantially sinusoidal path.

325. The engine of claim 323, wherein said guide is a roller of truncated conical configuration.

326. The engine of claim 324, wherein said guide is a roller of truncated conical configuration.

327. The device of claim 218, wherein said fluid working chamber is at least partially of toroidal configuration.

328. The device of claim 219, wherein said fluid working chamber is at least partially of toroidal configuration.

329. The device of claim 220, wherein said fluid working chamber is at least partially of toroidal configuration.

330. The engine of claim 225, wherein said fluid working chamber is at least partially of toroidal configuration.

331. The engine of claim 226, wherein said fluid working chamber is at least partially of toroidal configuration.

332. The engine of claim 227, wherein said fluid working chamber is at least partially of toroidal configuration.

333. The device of claim 219, wherein said housing comprises insulating material.

335. The device of claim 224, wherein said housing comprises insulating material.

336. The engine of claim 226, wherein said housing comprises insulating material.

337. *The engine of claim 230, wherein said housing comprises insulating material.*

338. *The engine of claim 231, wherein said housing comprises insulating material.*

339. *The device of claim 218, wherein said component assembly consists of one monolithic piece.*

340. *The device of claim 219, wherein said component assembly consists of one monolithic piece.*

341. *The device of claim 220, wherein said component assembly consists of one monolithic piece.*

342. *The device of claim 218, wherein said component assembly has a projecting portion which at least partly penetrates said segment during at least part of said cycle.*

343. *The device of claim 219, wherein said component assembly has a projecting portion which at least partly penetrates said segment during at least part of said cycle.*

344. *The device of claim 220, wherein said component assembly has a projecting portion which at least partly penetrates said segment during at least part of said cycle.*

345. *The engine of claim 225, wherein said component assembly has a projecting portion which at least partly penetrates said segment during at least part of said cycle.*

346. *The engine of claim 226, wherein said component assembly has a projecting portion which at least partly penetrates said segment during at least part of said cycle.*

347. *The engine of claim 227, wherein said component assembly has a projecting portion which at least partly penetrates said segment during at least part of said cycle.*

348. *A rotatable shaft, a mechanism and device for the working of fluids, said device comprising a housing with a cylinder assembly mounted therein, at least one component mounted to reciprocate within said cylinder assembly, said cylinder assembly having at least one working surface and said component having at least one second working surface such that said working surfaces in operation are approximately parallel and co-axial and variably spaced, said surfaces partly defining at least one fluid working chamber varying in capacity during an operating cycle of said device, means deployed between said cylinder assembly and said component to cause said component and said second surface to rotate while reciprocating relative to said cylinder assembly and said first surface, said mechanism causing said shaft to only rotate while said component assembly reciprocates and rotates, said housing including substantial insulating material.*

349. *The device of claim 348, said cylinder assembly being rotatably mounted in said housing.*

350. *A reciprocating internal combustion engine, including a fuel delivery system, an exhaust emissions control system and the device of claim 348.*

351. *The engine of claim 350, said cylinder assembly being rotatably mounted in said housing.*

352. *A compound engine comprising the engine of claim 350, at least one other engine, and a special means for transferring work between each of said at least two engines.*

353. *The compound engine of claim 352, wherein said special means include the*

flow of heated gases.

354. *The device of claim 348, wherein said component assembly defines a passage for fluids worked by said device.*

355. *The device of claim 348, including structure which defines a volume at least partially surrounding said cylinder assembly, in operation said volume functioning as a passage for fluids worked by said device.*

356. *The engine of claim 350, wherein said component assembly defines a passage for fluids worked by said device.*

357. *The engine of claim 350, including structure which defines a volume at least partially surrounding said cylinder assembly, in operation said volume functioning as a passage for fluids worked by said device.*

358. *The engine of claim 356, including filamentary material within said passage.*

359. *The engine of claim 357, including filamentary material within said volume.*

360. *The engine of claim 358, wherein said filamentary material is catalytic to expedite reactions between elements of the working fluids.*

361. *The engine of claim 359, wherein said filamentary material is catalytic to expedite reactions between elements of the working fluids.*

362. *The device of claim 348, including insulating material at least partially encasing said device.*

363. *The engine of claim 350, wherein said cylinder assembly is formed at least in part of ceramic material.*

364. The device of claim 348, wherein said cylinder assembly is formed at least in part of ceramic material.

365. The device of claim 348, wherein said component assembly is formed at least in part of ceramic material.

366. The device of claim 348, wherein said component assembly has a first distinct surface and said cylinder assembly a second distinct surfaces, in operation said distinct surfaces being approximately constantly spaced from and approximately parallel to one another, at least one of said distinct surfaces defining at least one depression wholly fillable by fluids worked by said device.

367. The device of claim 348, wherein said cylinder assembly is comprised of portions including at least one element, each said element holding said portions together and being pre-loaded under tension.

368. The device of claim 367, wherein said element is of tubular form.

369. The device of claim 348, wherein said component assembly is comprised of portions including at least one element, each said element holding said portions together and being pre-loaded under tension.

370. The device of claim 369, wherein said element is of tubular form.

371. The engine of claim 350, wherein said cylinder assembly is formed at least in part of ceramic material.

372. The engine of claim 350, wherein said component assembly is formed at least in part of ceramic material

373. The engine of claim 371, including at least one electrical circuit within said ceramic material.

374. *The engine of claim 372, including at least one electrical circuit within said ceramic material.*

375. *The rotatable shaft, mechanism and device of claim 348, in which said mechanism comprises a series of splines slidably mounted on another series of splines.*

376. *The rotatable shaft, mechanism and device of claim 348 including rollers, in which said mechanism comprises a series of flanges slidably mounted on another series of flanges, said two series of flanges being separated by said rollers.*

377. *The rotatable shaft, mechanism and device of claim 348, wherein said mechanism comprises at least one bellows.*

378. *The rotatable shaft, mechanism and device of claim 348, wherein said mechanism comprises at least one hinged element.*

379. *The device of claim 348, wherein said means comprise a guide restrained by a single endless substantially sinusoidal path.*

380. *The device of claim 379, wherein said guide is a roller of truncated conical configuration.*

381. *The engine of claim 350, wherein said means comprise a guide restrained by a single endless substantially sinusoidal path.*

382. *The engine of claim 381, wherein said guide is a roller of truncated conical configuration.*

383. *The device of claim 348, wherein said fluid working chamber is at least*

partially of toroidal configuration.

384. The engine of claim 350, wherein said fluid working chamber is at least partially of toroidal configuration.

385. The device of claim 349, wherein said housing comprises insulating material.

386. The engine of claim 351, wherein said housing comprises insulating material.

387. The device of claim 348, wherein said component assembly consists of one monolithic piece.

388. The device of claim 348, wherein said component assembly has a projecting portion which at least partly penetrates said segment during at least part of said cycle.

389. The engine of claim 350, wherein said component assembly has a projecting portion which at least partly penetrates said segment during at least part of said cycle.

END OF CLAIMS